Japan Radio Test Report

Project No.	:	2603C291
Equipment	:	Tapo Video Doorbell Camera
Brand Name	:	tp-link,tapo
Model Name	:	Tapo D235L, TD25L
Applicant	:	TP-Link Systems Inc.
Address	:	10 Mauchly, Irvine, CA 92618
Manufacturer	:	TP-Link Systems Inc.
Address	:	10 Mauchly, Irvine, CA 92618
Factory1	:	Lianzhou International Co., Ltd. Guangming Branch
Address	:	Room -101, 1F-8F, C901, C1001, C1101, C1201, No.198, Kelian Road, Yutang Community, Yutang Street, Guangming District, Shenzhen City, Guangdong Province, P.R.China
Date of Receipt	:	May 25, 2026
Date of Test	:	May 27, 2026 ~ Jul. 07, 2026
Issued Date	:	Jul. 23, 2026
Test Sample	:	Engineering Sample No.: DG920260525269
Standard(s)	:	Ordinance Regulating Radio Equipment General Provisions, Transmitting Equipment, Receiving Equipment, Article 49-20
Test Procedure	:	Test Method Specified Radio Equipment Article 2 Paragraph 1 of item19 (MIC Notice No.88 Appendix No.43)

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc. (Dongguan)

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Declaration

BTL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

BTL's reports apply only to the specific samples tested under conditions. It is manufacturer's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. BTL assumes no responsibility for the data provided by the customer, any statements, inferences or generalizations drawn by the customer or others from the reports issued by BTL.

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BTL is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer’s responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.
Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

Table of Contents page

REVISION HISTORY 4
1. SUMMARY OF TEST RESULTS 5
1.1. TEST FACILITY 6
1.2. MEASUREMENT UNCERTAINTY 6
1.3. TEST ENVIRONMENT CONDITIONS 6
2. GENERAL INFORMATION 7
2.1. GENERAL DESCRIPTION OF EUT 7
2.2. DESCRIPTION OF TEST MODES 9
2.3. BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED 11
2.4. DESCRIPTION OF SUPPORT UNITS 11
2.5. TABLE FOR PARAMETERS OF TEST SOFTWARE SETTING 11
3. TEST RESULTS 12
3.1. FREQUENCY TOLERANCE MEASUREMENT 12
3.2. OCCUPIED BANDWIDTH MEASUREMENT 14
3.3. UNWANTED EMISSION INTENSITY MEASUREMENT 15
3.4. ANTENNA POWER TOLERANCE MEASUREMENT 17
3.5. LIMITATION OF COLLATERAL EMISSION OF RECEIVER MEASUREMENT 18
3.6. TRANSMISSION ANTENNA GAIN (EIRP ANTENNA POWER) MEASUREMENT 20
3.7. TRANSMISSION RADIATION ANGLE WIDTH (3DB BEAMWIDTH) MEASUREMENT 22
3.8. RADIO INTERFERENCE PREVENTION CAPABILITY MEASUREMENT 24
3.9. CONSTRUCTION PROTECTION CONFIRMATION METHOD 26
4. LIST OF MEASURING EQUIPMENTS 27
5. EUT TEST PHOTO 28
APPENDIX A - FREQUENCY TOLERANCE 29
APPENDIX B - OCCUPIED BANDWIDTH 31
APPENDIX C - UNWANTED EMISSION INTENSITY 33
APPENDIX D - ANTENNA POWER TOLERANCE 37
APPENDIX E - LIMITATION OF COLLATERAL EMISSION OF RECEIVER 39

REVISION HISTORY

Report No.	Version	Description	Issued Date	Note
BTL-JPAP-1-2603C291	R00	Original Report.	Jul. 23, 2026	Valid

1. SUMMARY OF TEST RESULTS

Part	Description of Test	Rule Section	Result
3.1	Frequency Tolerance	Article 5, Annex 1	Pass
3.2	Occupied Bandwidth (99%)	Article 6, Annex 2	Pass
3.3	Unwanted Emission Intensity	Article 7, Annex 3	Pass
3.4	Antenna Power Tolerance	Article 14	Pass
3.5	Limitation of Collateral Emission of Receiver	Article 24, Paragraph 2	Pass
3.6	Transmission Antenna Gain (EIRP Antenna Power)	Article 49-20	N/A
3.7	Transmission Radiation Angle Width (3dB Beamwidth)	Article 49-20	N/A
3.8	Radio Interference Prevention Capability	Article 9-4, Item 5 Article 6-2, Item 3 and 5 of the Regulation for Enforcement of the Radio Law	Pass
3.9	Construction Protection Confirmation	Article 49-20	Pass

Method of measurement:	MIC Notice No.88 Appendix No.43
Test condition:	Conductive, RF test program provided by the customer was used to control the operating channel as well as the output power level.

Abbreviations used in this test report are as follows:

NC:	Normal Condition
EC:	Extreme Condition
EUT:	Equipment Under Test
DS:	Direct spreading
FH:	Frequency hopping
OFDM:	Orthogonal frequency division multiplexing

1.1. TEST FACILITY

The test facilities used to collect the test data in this report:
DGDLSR08-2/DGDLSR07-2: No.3, Jinshagang 1st Road, Dalang, Dongguan, Guangdong People's Republic of China.

1.2. MEASUREMENT UNCERTAINTY

Test Items	Uncertainty	Remark
Frequency Tolerance	1.4 ppm	Confidence levels of 95.45%
99% Bandwidth	0.75 %	Confidence levels of 95.45%
Antenna Power	1.3 dB	Confidence levels of 95.45%
TX-RX Emission	2.1 dB	Confidence levels of 95.45%

1.3. TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage	Tested By
Frequency Tolerance	24°C	53%	AC 100V/50Hz	Jay Wei
Occupied Bandwidth (99%)	24°C	53%	AC 100V/50Hz	Jay Wei
Unwanted Emission Intensity	24°C	53%	AC 100V/50Hz	Jay Wei
Antenna Power Tolerance	24°C	53%	AC 100V/50Hz	Andrew Jiang
Limitation of Collateral Emission of Receiver	24°C	53%	AC 100V/50Hz	Jay Wei

2. GENERAL INFORMATION

2.1. GENERAL DESCRIPTION OF EUT

Equipment	Tapo Video Doorbell Camera
Brand Name	tp-link,tapo
Test Model	Tapo D235L
Model Name	Tapo D235L, TD25L
Model Difference(s)	Only differ in model name.
Hardware Version	2.0
Software Version	2.X
Power Source	1# Supplied from USB port. 2# Battery supplied. 1) LR2170SZ 2) INR21700/50E 3# DC Voltage supplied from AC adapter.(Support unit)
Power Rating	1# 5Vdc 2A 2# DC 3.6V or 3.65V 3# 8-24Vac 1A 50/60Hz
Operation Frequency	2402MHz ~ 2480MHz
Modulation Type	GFSK
Data Rate	1Mbps
Occupied Bandwidth	1Mbps: 1.44 MHz
Antenna Power (Rated Power)	1Mbps: 4.49 mW
Antenna Power (Max. Conducted Power)	1Mbps: 4.4771 mW

Note:

1. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

2. The prototype is equipped with two types of batteries.

3. Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	20	2442
01	2404	21	2444
02	2406	22	2446
03	2408	23	2448
04	2410	24	2450
05	2412	25	2452
06	2414	26	2454
07	2416	27	2456
08	2418	28	2458
09	2420	29	2460
10	2422	30	2462
11	2424	31	2464
12	2426	32	2466
13	2428	33	2468
14	2430	34	2470
15	2432	35	2472
16	2434	36	2474
17	2436	37	2476
18	2438	38	2478
19	2440	39	2480

4. Table for Filed Antenna:

Ant.	Manufacturer	P/N	Antenna Type	Connector	Gain (dBi)
1	TP-Link Systems Inc.	3100000908	Dipole	N/A	-0.11

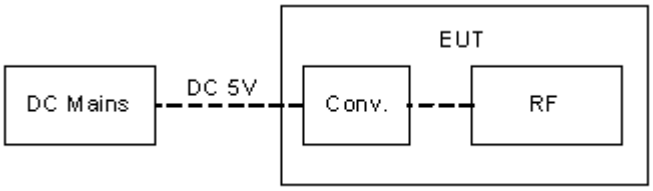
Note: The antenna gain is provided by the manufacturer.

2.2. DESCRIPTION OF TEST MODES

The EUT was tested while in a continuous transmitter / receiver mode.
The EUT was tuned to a low, middle and high channel for all tests. The EUT continuously transmitted a modulated packet with payload, while transmitting the EUT was setup to operate at the intended maximum power output available to the end user. For all test case pre/scans were completed in all modes to determine worst case levels.

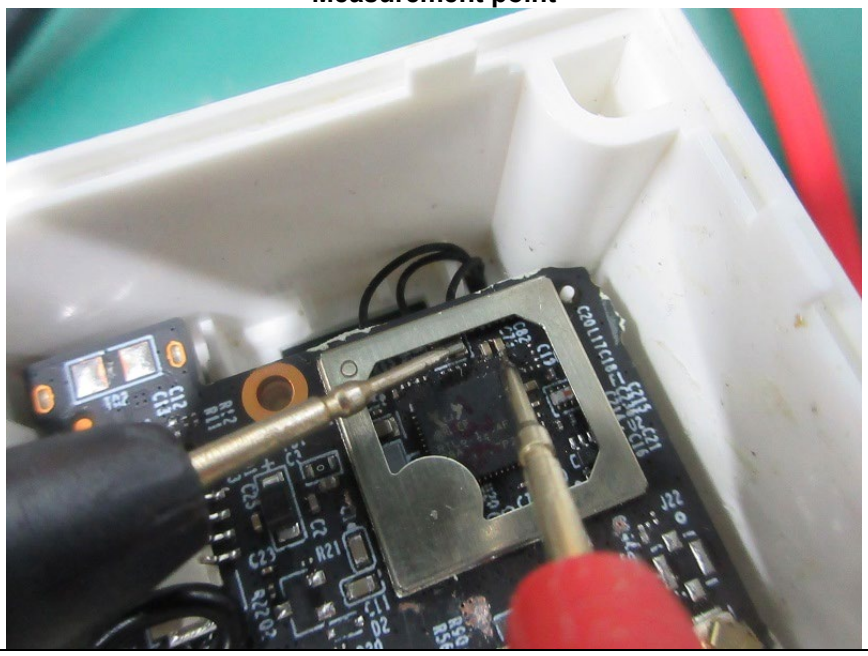
Test Mode	Description
Mode 1	1Mbps/CH00, CH19, CH39

Power Supply Voltage Fluctuation Test



Voltage Fluctuation Test	Normal Voltage	High Voltage + 10% of Normal Voltage	Low Voltage - 10% of Normal Voltage
Input: DC Power	5V	5.5V	4.5V
Output: DC Power	3.306V	3.306V	3.306V
Voltage Variation (%)	-	0	0

Measurement point

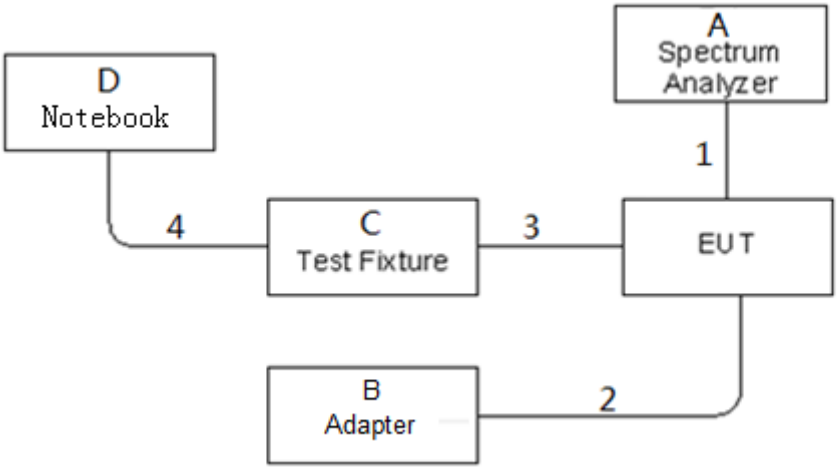


Note:

Voltage Variation (%)
= (Output High Voltage or Low Voltage - Output Normal Voltage)/Output Normal Voltage * 100

During the input supply voltage to the EUT from the external power source is varied by +/- 10%, if output voltage had been confirmed that the fluctuation of power supply to the RF circuit of EUT (excluding power source) is equal to or less than +/- 1%.
Exempt extremely high and low supply voltage condition tests, EUT only operated in normal voltage to test all regulations.

2.3. BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



2.4. DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.
A	Spectrum Analyze	R&S	FSP38	100852
B	Adapter	N/A	N/A	N/A
C	Test Fixture	N/A	N/A	N/A
D	Notebook	HONOR	Nbl-WAQ9HNRP	N/A

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	RF Cable	YES	NO	0.1m
2	DC Cable	YES	NO	1.2m
3	CONTROL Cable	NO	NO	0.2m
4	USB Cable	NO	NO	1.1m

2.5. TABLE FOR PARAMETERS OF TEST SOFTWARE SETTING

During testing, Channel & Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level.

Test Software Version	AmebaDPlus_MP_tool_1V6		
Frequency (MHz)	2402	2440	2480
1Mbps	0x3e	0x3e	0x3e

3. TEST RESULTS

3.1. FREQUENCY TOLERANCE MEASUREMENT

3.1.1. LIMIT

Item	Limits (See Article 5 and Annex 1 table 7-8 of the Ordinance Regulating Radio Equipment)
Frequency Tolerance	-50≤ppm≤50

3.1.2. SETTING

The following table is the setting of the spectrum analyzer.

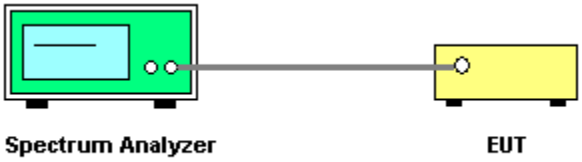
Spectrum Parameter	Setting
Span	5MHz
RBW / VBW	10kHz / 30kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

3.1.3. TEST PROCEDURES

Test method according to Clause 3 of Annex No.43 of MIC Notification No.88.

1. Frequency accuracy of SA shall be less than 10% of limits tolerance (5ppm).
2. Set spectrum analyzer with condition in section 3.1.2 and tune reference level to observe receiving signal position.
3. Center Frequency: The center frequency of testing for EUT.
4. EUT have transmitted modulation signal and fixed channelize. The peak value of the power envelope shall be measured and noted. The span shall be reduced and the marker moved in a positive frequency increment until the upper, (relative to the centre frequency), -10 dBc point is reached. This value shall be noted as f1. The marker shall then be moved in a negative frequency increment until the lower, (relative to the centre frequency), -10 dBc point is reached. This value shall be noted as f2. f is calculated as (f1 + f2) / 2, fc is declaring of channel frequency. Then the frequency error formula is $(fc-f)/fc\times10^6$ ppm and the limit is less than ±50ppm.

3.1.4. TEST SETUP LAYOUT



3.1.5. TEST DEVIATION

There is no deviation with the original standard.

3.1.6. EUT OPERATION DURING TEST

The EUT was programmed to be in modulation mode.

3.1.7. TEST RESULTS

Please refer to the Appendix A.

3.2. OCCUPIED BANDWIDTH MEASUREMENT

3.2.1. LIMIT

Item	Limits (See Article 6 and Annex 2 30 of the Ordinance Regulating Radio Equipment)
Occupied Bandwidth	≤26MHz

3.2.2. SETTING

The following table is the setting of spectrum analyzer.

Spectrum Parameter	Setting
Span	60MHz
RBW / VBW	300kHz / 300kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

3.2.3. TEST PROCEDURES

Test method according to Clause 4 of Annex No.43 of MIC Notification No.88.

1. Set spectrum analyzer with condition in section 3.2.2 and tune reference level to observe receiving signal position.
2. EUT have transmitted the maximum modulation signal and fixed channelize. SA set to 99% of occupied bandwidth to measure occupied bandwidth. The limit is less than 26MHz

3.2.4. TEST SETUP LAYOUT

3.2.5. TEST DEVIATION

There is no deviation with the original standard.

3.2.6. EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

3.2.7. TEST RESULTS

Please refer to the Appendix B.

3.3. UNWANTED EMISSION INTENSITY MEASUREMENT

3.3.1. LIMIT

Item	Limits (See Article 7 and Annex 3 26 of the Ordinance Regulating Radio Equipment)
TX Spurious Emission	≤2.5 μW/MHz (30MHz≤f≤1000MHz)
	≤2.5 μW/MHz (1000MHz≤f<2387MHz; 2496.5MHz<f)
	≤25 μW/MHz (2387MHz≤f<2400MHz) and (2483.5MHz<f≤2496.5MHz)
Measurement range: 30MHz~5th harmonics	

3.3.2. SETTING

The following table is the setting of spectrum analyzer.

Spectrum Parameter	Setting
RBW / VBW	100kHz / 100kHz (30~1000MHz) 1 MHz / 1 MHz (Above 1000MHz)
Detector	Positive Peak
Trace	Max Hold
Sweep Time	Auto

3.3.3. TEST PROCEDURES

Test method according to Clause 5 of Annex No.43 of MIC Notification No.88.

1. EUT have transmitted the maximum modulation signal and fixed channelize.
2. Set spectrum analyzer with condition in section 3.3.2 and tune reference level to observe receiving signal position.
3. SA adjusted to start frequency 30MHz and stop frequency 1000MHz. Then to mark peak reading value +cable loss shall be less than 2.5μW/MHz.
4. SA adjusted to start frequency 1000MHz and stop frequency 2387MHz. Then to mark peak reading value + cable loss shall be less than 2.5μW/MHz.
5. SA adjusted to start frequency 2387MHz and stop frequency 2400MHz. Then to mark peak reading value + cable loss shall be less than 25μW/MHz.
6. SA adjusted to start frequency 2483.5MHz and stop frequency 2496.5MHz. Then to mark peak reading value + cable loss shall be less than 25μW/MHz.
7. SA adjusted to start frequency 2496.5MHz and stop frequency 12500MHz. Then to mark peak reading value + cable loss shall be less than 2.5μW/MHz.
8. If the Result_Value is over the requirement, take total sum of 1MHz band centered at the spur frequency like time domain power measurement as Result_Value.

3.3.4. TEST SETUP LAYOUT

3.3.5. TEST DEVIATION

There is no deviation with the original standard.

3.3.6. EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

Note:
※ 1: Frequency Band 1 (30MHz≤f≤1000MHz)
※ 2: Frequency Band 2 (1000MHz≤f<2387MHz)
※ 3: Frequency Band 3 (2387MHz≤f<2400MHz)
※ 4: Frequency Band 4 (2483.5MHz<f≤2496.5MHz)
※ 5: Frequency Band 5 (2496.5MHz<f)

Band	1	2	3	4	5
Cable Loss(dB)	15.5	15.5	15.5	15.5	15.5

3.3.7. TEST RESULTS

Please refer to the Appendix C.

3.4. ANTENNA POWER TOLERANCE MEASUREMENT

3.4.1. LIMIT

Item	Limits (See Article 14 table 8 and Article 49-20 of the Ordinance Regulating Radio Equipment)
Antenna Power	10 mW or less
EIRP	12.14 - 22.14 dBm or less
Antenna Power Tolerance	+20% (Base on manufacturer declare antenna power)

3.4.2. TEST PROCEDURES

Test method according to Clause 6 of Annex No.43 of MIC Notification No.88.

1. Connect the high frequency power meter to the attenuator and measure the total power.
2. Set the antenna power as follows:
   a. Continuous waves: value in a.
   b. Burst waves: value in a, and value calculated from the average power within bursts from rates of transmission times.

3.4.3. TEST SETUP LAYOUT

3.4.4. TEST DEVIATION

There is no deviation with the original standard.

3.4.5. EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

3.4.6. TEST RESULTS

Please refer to the Appendix D.

3.5. LIMITATION OF COLLATERAL EMISSION OF RECEIVER MEASUREMENT

3.5.1. LIMIT

Item	Limits (See Article 24, Paragraph 2 of the Ordinance Regulating Radio Equipment)
RX Spurious Emission	≤4 nW (-54 dBm) (f<1GHz)
	≤20 nW (-47 dBm) (1GHz≤f)
Measurement range: 30MHz~5th harmonics	

3.5.2. SETTING

The following table is the setting of spectrum analyzer.

Spectrum Parameter	Setting
RBW / VBW	100kHz / 100kHz (30~1000MHz) 1 MHz / 1 MHz (Above 1000MHz)
Detector	Positive Peak
Trace	Max Hold
Sweep Time	Auto

3.5.3. TEST PROCEDURES

Test method according to Clause 7 of Annex No.43 of MIC Notification No.88.

1. EUT have the continuous reception mode and fixed only one channelize.
2. Set spectrum analyzer with condition in section 3.5.2 and tune reference level to observe receiving signal position.
3. SA set RBW: 100kHz and VBW: 100kHz. Then adjust to start frequency 30MHz and stop frequency 1000MHz. Search to mark peak reading value + cable loss shall be less than 4nW.
4. SA set RBW: 1MHz and VBW: 1MHz. Then adjust to start frequency 1000MHz and stop frequency 12500MHz. Search to mark peak reading value + cable loss shall be less than 20nW.

3.5.4. TEST SETUP LAYOUT

3.5.6. TEST DEVIATION

There is no deviation with the original standard.

3.5.6. EUT OPERATION DURING TEST

The EUT was programmed to be in continuously receiving mode.

Note:
※ 6: Frequency Band 6 (f<1GHz)
※ 7: Frequency Band 7 (1GHz≤f)

Band	6	7
Cable Loss(dB)	1	1

3.5.7. TEST RESULTS

Please refer to the Appendix E.

3.6. TRANSMISSION ANTENNA GAIN (EIRP ANTENNA POWER) MEASUREMENT

3.6.1. LIMIT

Item	Limits (See Article 49-20 of the Ordinance Regulating Radio Equipment)
Transmission Antenna Gain	12.14 dBi or less (When an E.I.R.P. is less than the limit, the shortage can be compensated for by the gain of the transmitting antenna.)

3.6.2. SETTING

The following table is the setting of spectrum analyzer.

Spectrum Analyzer	Setting
Span	0Hz
RBW / VBW	1MHz / 1MHz
Detector	Positive peak
Trace	Max Hold
Sweep Time	Auto

3.6.3. TEST PROCEDURES

Test method according to Clause 10 of Annex No.43 of MIC Notification No.88.

1. Set EUT and measuring antenna at the same height (1.5 m) and roughly facing each other. EUT have transmitted the maximum modulation signal and fixed channelize.
2. Set spectrum analyzer with condition in section 3.6.2 and tune reference level to observe receving signal position. Center Frequency: Provide maximum power frequency.
3. Rotate directions of the EUT horizontally and ertically to find the maximum receiving power.
4. Move the measuring antenna height up and down within ± 50cm of EUT height and swing it to find the maximum output of measuing antenna. The output level at the spectrum analyzer is read as "E".
5. Keeping the worst measuring antenna height and turntable angle unchanged, remove the EUT from the turntable and replace it with SG and a replacement standard antenna. Align the replacement antenna with the measuring antenna, and SG sends radio waves of the same frequency as the EUT. Adjust the replacement antenna to the maximum received power.
6. Move the measuring antenna height up and down within ± 50cm, maintain the worst height, and adjust the output power of SG to achieve the power value "E" in step 4 of the spectrum analyzer.
7. Calculate EIRP by the formula below.

   $EIRP = G_S - L_F + P_S$

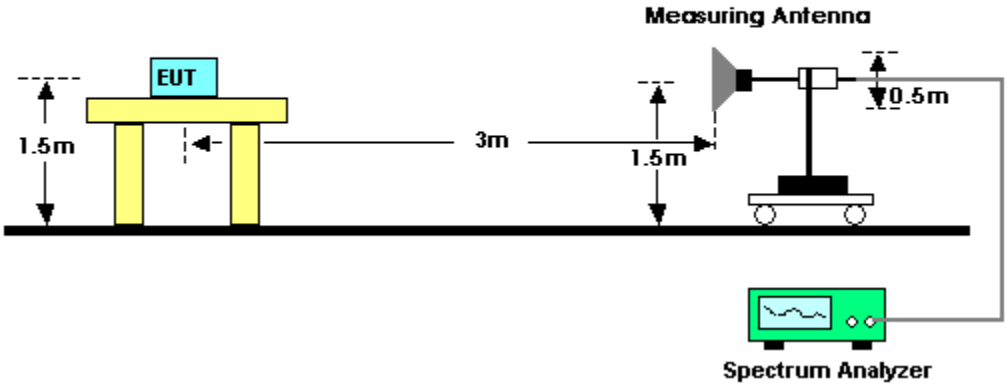
   G_S: Gain of replacement antenna (dBi)

   L_F: Cable loss between SG and replacement antenna (dB)

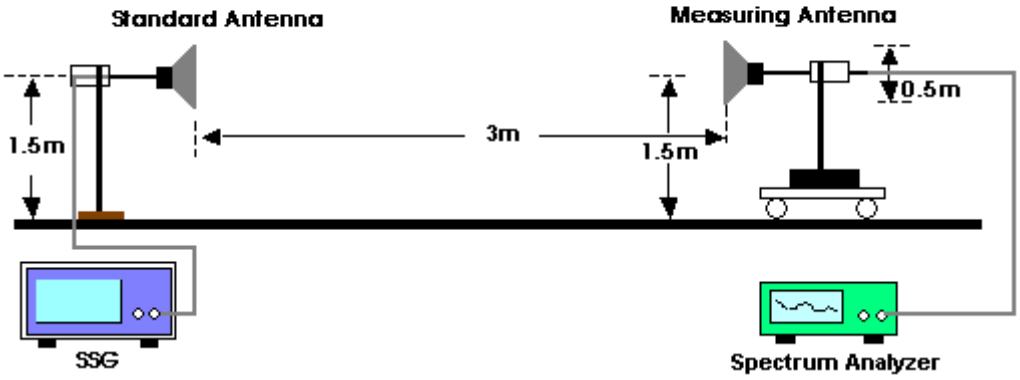
   P_S: Output power of SG output port (dBm)

3.6.4. TEST SETUP LAYOUT

For EUT radiation measurement



For standard antenna measurement



3.6.5. TEST DEVIATION

There is no deviation with the original standard.

3.6.6. EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

3.6.7. TEST RESULT OF TRANSMISSION ANTENNA GAIN (EIRP ANTENNA POWER)

Method of measurement:	See MIC Notice No.88 Appendix No.43 Clause 10
Results:	N/A

3.7. TRANSMISSION RADIATION ANGLE WIDTH (3DB BEAMWIDTH) MEASUREMENT

3.7.1. LIMIT

Item	Limits (See Article 49-20 of the Ordinance Regulating Radio Equipment)
3dB antenna beam width	360°/A (if A<1; then A=1) A= EIRP Power [mW]/16.36 [mW]

3.7.2. SETTING

The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Span	0Hz
RBW / VBW	1MHz / 1kHz
Y scale	5dB
Detector	Peak
Trace	Max Hold

3.7.3. TEST PROCEDURES

Test method according to Clause 11 of Annex No.43 of MIC Notification No.88.

1. Set EUT and measuring antenna at the same height (1.5 m) and roughly facing each other. EUT have transmitted absence of modulation signal and fixed channelize.
2. Set spectrum analyzer with condition in section 3.7.2 and tune reference level to observe receving signal position. Center Frequency: The center frequency of testing for EUT.
3. Rotate directions of the EUT horizontally and ertically to find the maximum receiving power.
4. Move the measuring antenna height up and down within ± 50cm of EUT height and swing it to find the maximum output of measuing antenna. The output level at the spectrum analyzer is read as "E".
5. Using the EIRP measured in section 3.6.3, calculate the allowable angles Θ_0 of the EUT's main radiation in the horizontal and vertical directions using the following formula.

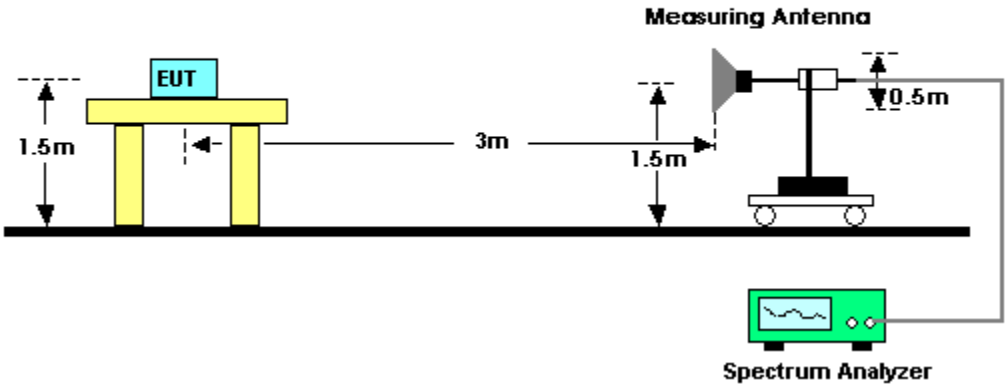
   $\Theta_0 = 360° / A$

   Θ_0: The allowable angle of the main radiation of EUT transmission antenna (°)

   A: EIRP Power [mW] / 16.36 [mW] (If A<1; then A=1)
6. Rotate the EUT in the horizontal direction, reducing the angle of the rotating table by 3 dB from the maximum point of received power "E" (θ_h: Measure the half angle of the horizontal plane).
7. Place the EUT horizontally and rotate it as much as possible around the entire circumference from the main radiation direction Θ_0 to the radiation angle other than the one calculated in step 5, ensuring that the received power drops by more than 3dB from the maximum point "E" of the received power.

8. Vertical tilt EUT, measuring the angle from the horizontal plane when the received power drops by 3dB from the maximum point "E" (θ_v: The half value angle of the vertical plane).
9. After returning the test equipment to position 3, the angle of the main radiation calculated from the direction of the main radiation Θ_0 should be inclined along the vertical plane direction at the widest possible angle (set at 90 degrees or above) for other radiation angles, ensuring that the received power drops by more than 3dB from the maximum point "E" of the received power.

3.7.4. TEST SETUP LAYOUT



3.7.5. TEST DEVIATION

There is no deviation with the original standard.

3.7.6. EUT OPERATION DURING TEST

The EUT was programmed to be in un-modulation mode.

3.7.7. TEST RESULT OF TRANSMISSION RADIATION ANGLE WIDTH (3DB BEAMWIDTH)

Method of measurement:	See MIC Notice No.88 Appendix No.43 Clause 11
Results:	N/A

3.8. RADIO INTERFERENCE PREVENTION CAPABILITY MEASUREMENT

3.8.1. LIMIT

Item	Limits (See Article 9-4 Item 5 of the Ordinance Regulating Radio Equipment and Article 6-2 Item 3 of the Regulation for Enforcement of the Radio Law)
Identification code	The wireless equipment of the radio station mainly used in the same station automatically sends or receives the identification code.

3.8.2. MEASURING ID CODE SOFTWARE

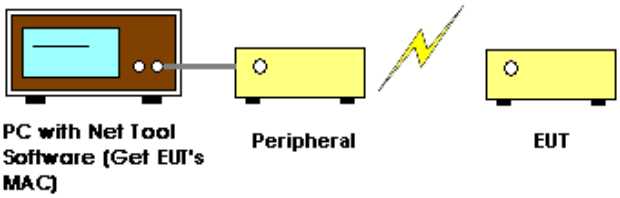
PC with Net Tool	Setting
MAC IP List	MAC Scan

3.8.3. TEST PROCEDURES

Test method according to Clause 23 of Annex No.43 of MIC Notification No.88.

1. In the case that the EUT has the function of automatically transmitting the identification code:
   a. Transmit the predetermined identification codes form EUT.
   b. Check the transmitted identification codes with the demodulator.
2. In the case of receiving the identification code:
   a. Transmit the predetermined identification codes form the counterpart.
   b. Check if communication is normal.
   c. Transmit the signals other than predetermined ID codes form the counterpart.
   d. Check if the EUT stops the transmission, or if it displays that idnetification codes are different from the predetermined ones.

3.8.4. TEST SETUP LAYOUT



3.8.5. TEST DEVIATION

There is no deviation with the original standard.

3.8.6. EUT OPERATION DURING TEST

The EUT was programmed to be in normal mode.

3.8.7. TEST RESULT OF RADIO INTERFERENCE PREVENTION CAPABILIT

Test Power:	Normal Voltage
Test Mode:	1Mbps
Test Result:	Pass (identification code: [0x0X00E04C23D58A])

BD Address 0x0X00E04C23D58A

3.9. CONSTRUCTION PROTECTION CONFIRMATION METHOD

3.9.1. LIMIT

(See Article 49-20 of the Ordinance Regulating Radio Equipment)

The high-frequency section and modulation section of the radio equipment except for the antenna system shall not be capable of being opened easily.

3.9.2. CONFIRMATION METHOD

The RF and modulation portions are protected against illegal modification as following method:

Tick the appropriate box	
√	1. Sealed with special screws.
	2. Plastic chassis is being welded using ultrasonic waves.
	3. Chassis is glued using a special adhesive.
	4. Metal covers are spot-fused.
	5. Cover is specially interlocked.
	6. RF and Modulation components are covered with shielding case and this shielding case is soldered.
	7. Shield case is welded at RF and modulation parts, and ID-ROM is welded using the BGA Method.
	8. Shield case is welded at RF and modulation parts, and ID-ROM is glued at its lead with a special adhesive.
	9. Shield case is welded at RF and modulation parts, and ID-ROM is guled with a non-transparent laminating agent.
	10. RF and Modulation parts are mounted on PCB with surface mount technology, and there is no any adjustable part on PCB or adjustable parts are not exposed.

4. LIST OF MEASURING EQUIPMENTS

Kind of Equipment	Manufacturer	Model No.	Serial No.	Validity Date (See Note 1)	Calibration Agency	Class Information
Peak Power Analyzer	Keysight	8990B	MY51000506	Apr. 25, 2027	CEPREI Calibration and Testing Center	(c)
Wideband power sensor	Keysight	N1923A	MY58310004	Apr. 25, 2027	CEPREI Calibration and Testing Center	(c)
Isolation attenuator	Z-Link	ASMA-10-18-2W	N/A	N/A	N/A	-
Multimeter	FLUKE	15B PRO	61911042WS	Apr. 25, 2027	CEPREI Calibration and Testing Center	(c)
Spectrum Analyze	R&S	FSP38	100852	Apr. 25, 2027	CEPREI Calibration and Testing Center	(c)
Measurement Software	BTL	BTL Conducted Test	N/A	N/A	N/A	-
AC power source	Preen	AFC-S-1250	F123080107	Nov. 21, 2026	CEPREI Calibration and Testing Center	(c)
DC Block	N/A	N/A	N/A	N/A	N/A	-
Isolation attenuator	Z-Link	ASMA-16-18-2W	N/A	May 16, 2027	CEPREI Calibration and Testing Center	(c)

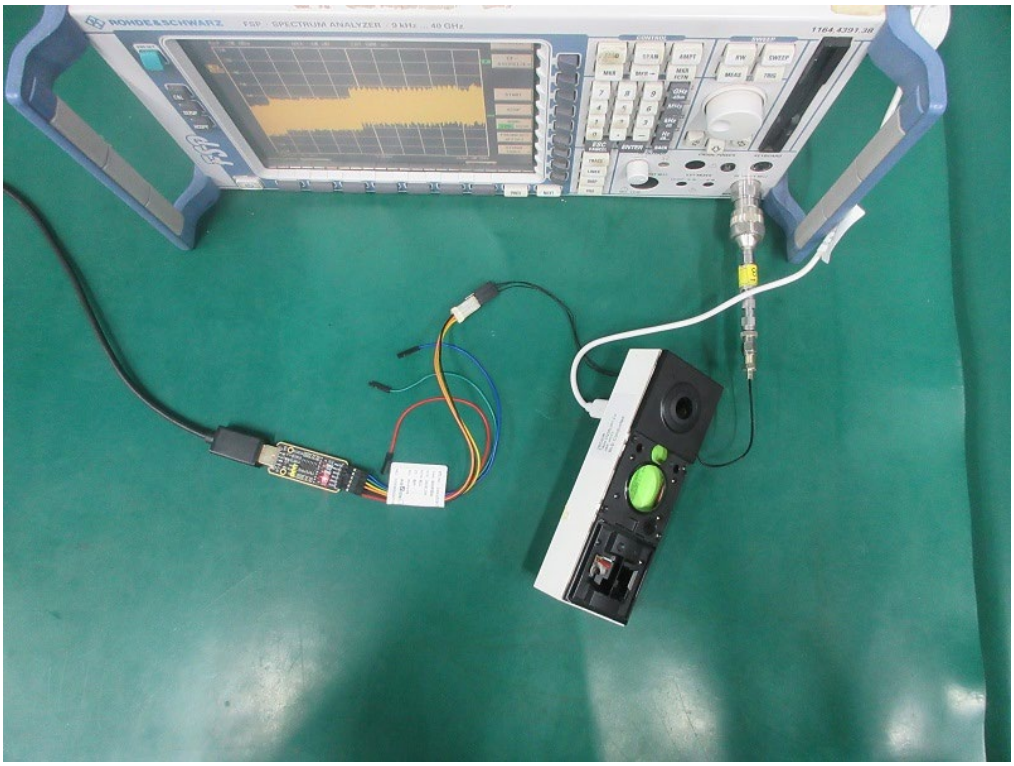
Remark:

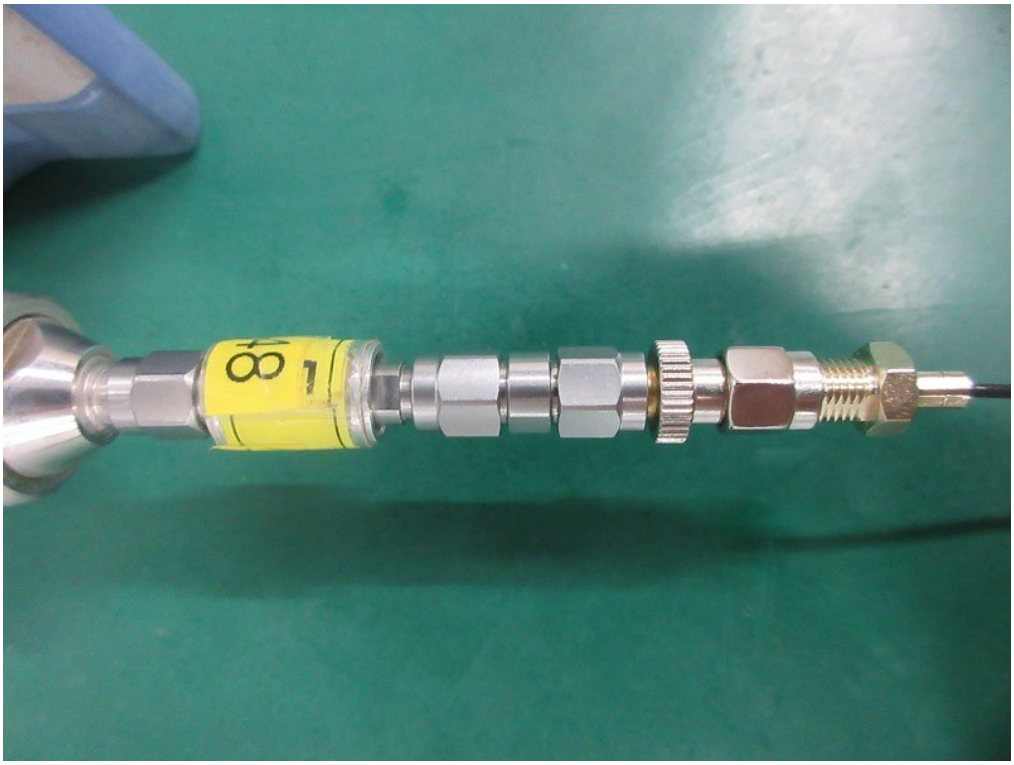
a. Calibration conducted by the National Institute of Information and Communications Technology (NITC) in Japan (hereinafter referred to as “NITC”) or a designated calibration agency under Article 102-18 paragraph (1) in JRL.
b. Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Act (Act No.51 of 1992).
c. Calibration conducted in conturies except Japan, whice shall be equivalent to the calibration Conducted by the NITC or a designation agency under Article 102-18 paragraph (1).
d. Calibration, etc. conducted by using measuring instruments and other epuipment listed in the above column of appended table No.3, whice shall have been given any type of calibration, etc. listed above from (a) to (c). From JRL Article 24-2, paragraph 4, item 2.

Note:

1. “N/A” denotes the equipment is verified or confirmed internally by test lab.
2. The calibration interval of the above test instruments is 12 months.
3. The Calibration Agency(CHINA CEPREI LABORATORY) address for the Building 9, No. 78, West Zhucun Avenue, Zhucun Street, Zengcheng District, Guangzhou City.

5. EUT TEST PHOTO



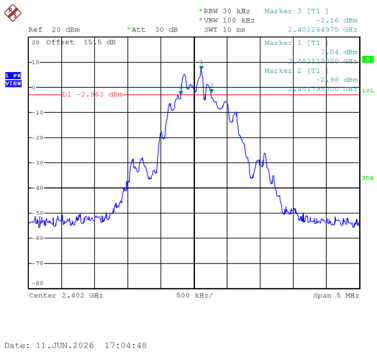


APPENDIX A - FREQUENCY TOLERANCE

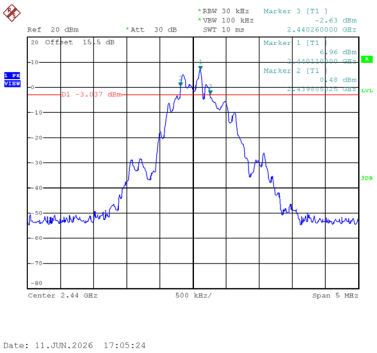
Test Mode:	TX Mode_1Mbps

Test Voltage	Normal Voltage			Remarks
Test Frequency (MHz)	2402	2440	2480	Low/Mid/High of test frequency range
Measured Frequency (MHz)	2402.0299	2440.0325	2480.0124	-
Frequency Tolerance (ppm)	+12.45	+13.32	+5.00	Limit: -50≤ppm≤50

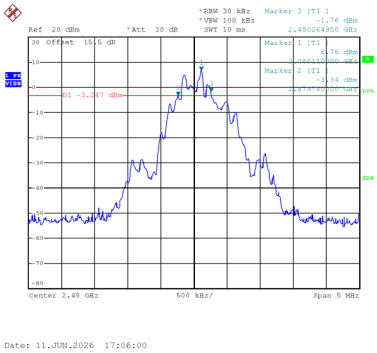
CH00



CH19



CH39

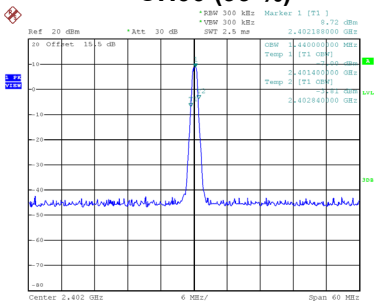


APPENDIX B - OCCUPIED BANDWIDTH

Test Mode:	TX Mode_1Mbps

Test Voltage	Normal Voltage			Remarks
Test Frequency (MHz)	2402	2440	2480	Low/Mid/High of test frequency range
Occupied Bandwidth (MHz)	1.44	1.44	1.44	Limit ≤ 26 MHz

CH00 (99 %)



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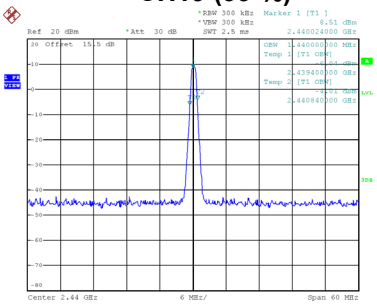
CH19 (99 %)



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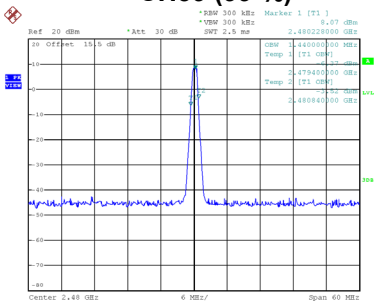
CH39 (99 %)



Date: 11.JUN.2026 16:42:49

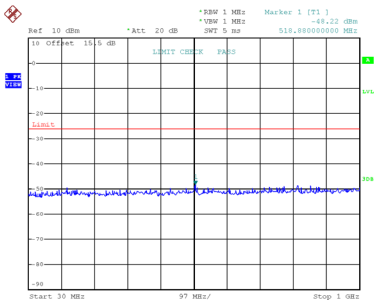
APPENDIX C - UNWANTED EMISSION INTENSITY

Test Mode:	TX Mode_1Mbps

Test Voltage			Normal Voltage			Remarks
Test Frequency (MHz)			2402	2440	2480	Low/Mid/High of test frequency range
Unwanted Emission Intensity (Power emission within 1MHz bandwidth)	※ 1	MHz	518.88	773.02	982.54	Limit ≤ 2.5 μW/MHz (-26 dBm/MHz)
		μW/MHz	0.0151	0.0149	0.0153	
	※ 2	MHz	2198.37	2248.30	2170.63	Limit ≤ 2.5 μW/MHz (-26 dBm/MHz)
		μW/MHz	0.0238	0.0195	0.0209	
	※ 3	MHz	2400.00	2388.51	2391.34	Limit ≤ 25 μW/MHz (-16 dBm/MHz)
		μW/MHz	9.1411	0.0189	0.0216	
	※ 4	MHz	2486.80	2484.77	2483.50	Limit ≤ 25 μW/MHz (-16 dBm/MHz)
		μW/MHz	0.0234	0.0182	1.2853	
	※ 5	MHz	10239.21	10239.21	9458.94	Limit ≤ 2.5 μW/MHz (-26 dBm/MHz)
		μW/MHz	0.1276	0.1028	0.1050	

Note:
Explanation of Marker and ZeroSP test:
1) The frequency of Marker during testing is the frequency that exceeds the limit the most.
2) The testing of ZeroSP is the worst, covering the entire frequency band.

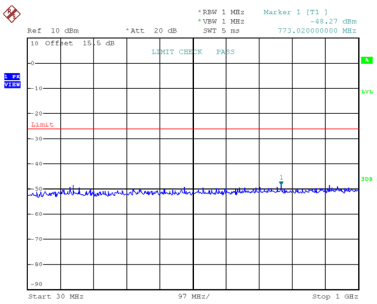
CH00



Date: 11.JUN.2026 16:36:22

CH19

※1: 30MHz≤f≤1000MHz



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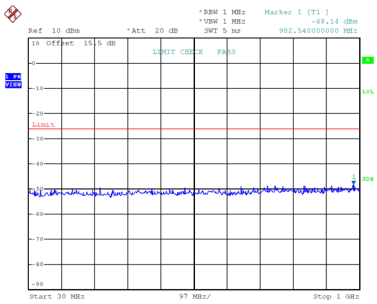
CH39



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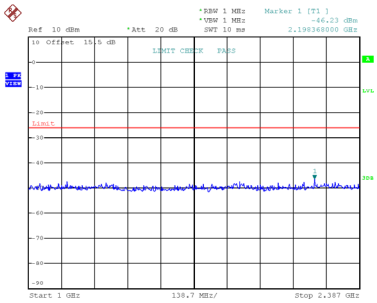
※2: 1000MHz≤f<2387MHz



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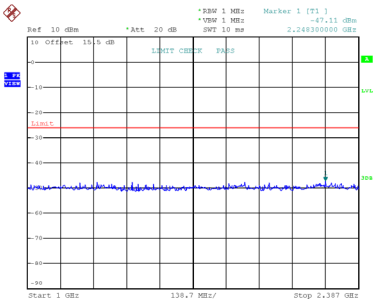

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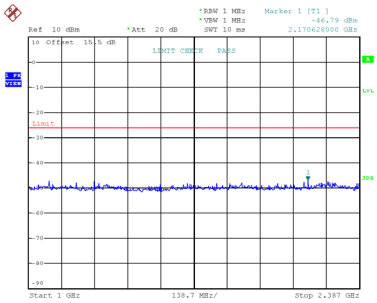
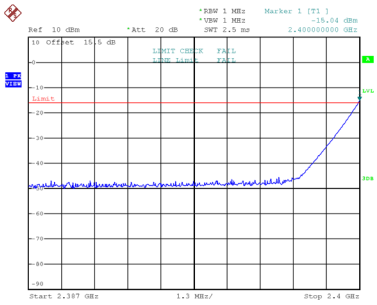


Date: 11.JUN.2026 16:43:07

※3: 2387MHz≤f<2400MHz



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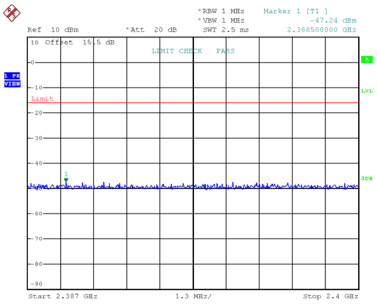

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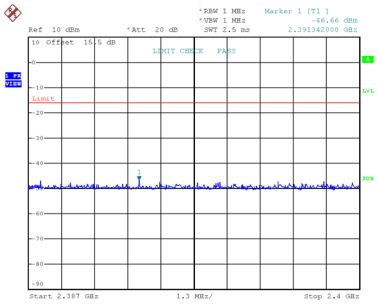

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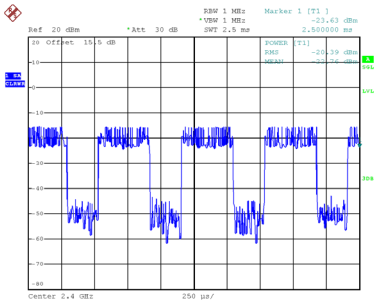
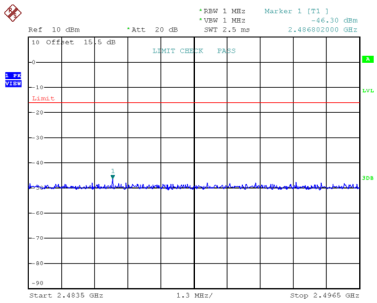
ZeroSP



Date: 11.JUN.2026 16:36:44

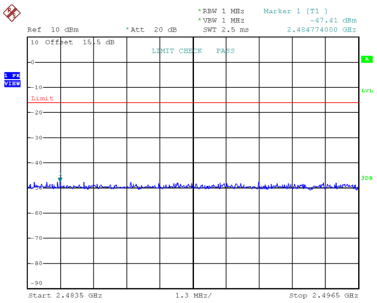
CH00



Date: 11.JUN.2026 16:36:54

CH19

※4: 2483.5MHz<f≤2496.5MHz



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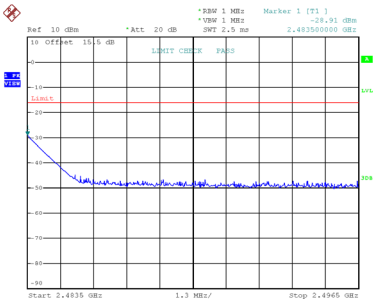
CH39



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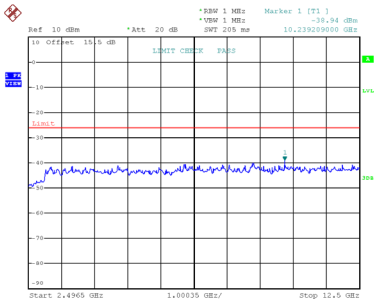
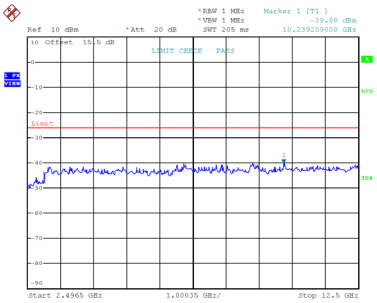


Date: 11.JUN.2026 16:37:02

※5: 2496.5MHz<f



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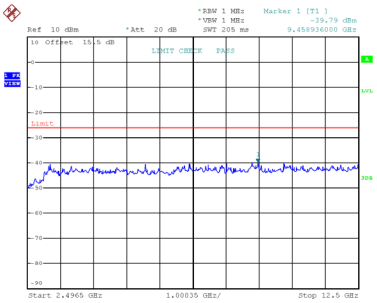


Date: 11.JUN.2026 16:43:33

APPENDIX D - ANTENNA POWER TOLERANCE

Test Mode:	TX Mode_1Mbps

Normal Voltage

Test Frequency	Conducted Antenna Power		Rated Antenna Power	Conducted Antenna Power Limit	Antenna Power Tolerance Limit	
(MHz)	(dBm)	(mW)	(mW)	(mW)	(+20%)	
2402	6.49	4.4566	4.49	10	-0.74	%
2440	6.51	4.4771	4.49	10	-0.29	%
2480	6.23	4.1976	4.49	10	-6.51	%

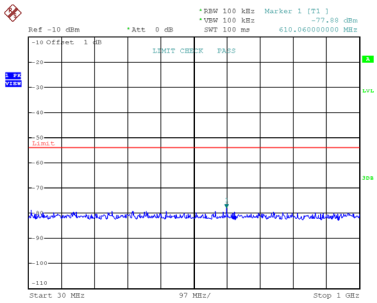
Note:
1. Antenna power tolerance = (conducted antenna power–rated antenna power)/rated antenna power * 100%

APPENDIX E - LIMITATION OF COLLATERAL EMISSION OF RECEIVER

Test Mode:	RX Mode_1Mbps

Test Voltage			Normal Voltage			Remarks
Test Frequency (MHz)			2402	2440	2480	Low/Mid/High of test frequency range
Limitation of Collateral Emission of Receiver	※6	MHz	610.06	883.60	961.20	Limit ≤ 4 nW (-54 dBm)
		nW	0.0163	0.0140	0.0151	
	※7	MHz	7187.00	9234.00	9280.00	Limit ≤ 20 nW (-47 dBm)
		nW	0.0350	0.0374	0.0406	

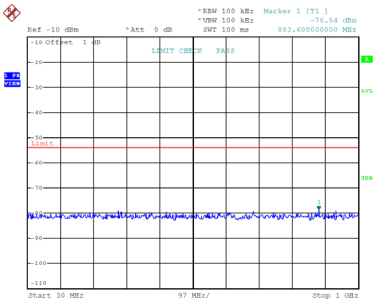
CH00



Date: 11.JUN.2026 17:07:26

CH19

※6: f<1GHz



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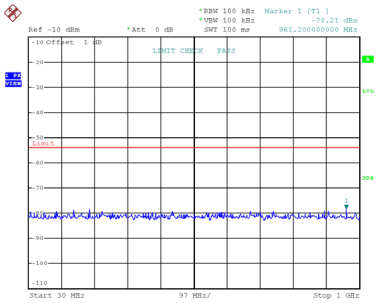
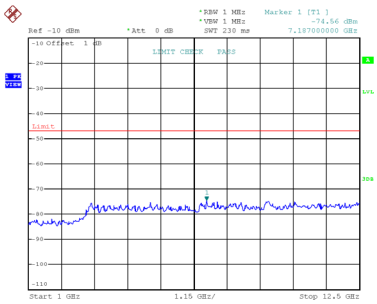
CH39



Date: 11.JUN.2026 17:08:42

※7: 1GHz≤f



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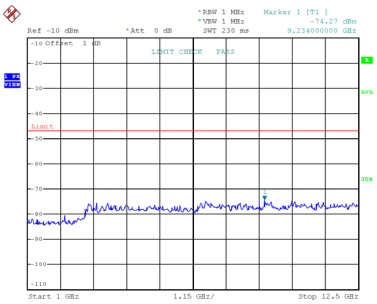

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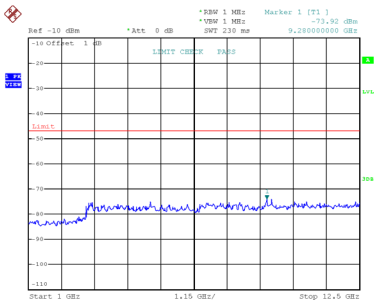

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End of Test Report